Case Selection

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Endodontic cases are classified into :

1- Cases to be treated by dental practitioner

2- Cases to be referred to experienced dentist

2- Cases to be referred to endodontists

4- Cases should be extracted

The Decision About whether the patient should be treated or referred

(a) Dentist’s skill

(b) Difficulty of the case

(A) Dentist’s skill

(a) Continuing education

Any dentist should improve his skill by joining the program of continuing education by the dental schools

(b) Facilities and equipment :

-The available armamentarium determines the complexity of the cases that a dentist can successfully manage in the office.

-Available armamentarium ⟶ definite factor in case selection.

(B) Difficulty of the case

(A) Systemic condition of the patient

-There are no medical contraindications to endodontic treatment .

-Several patient factors must be considered before endodontic treatment is initiated .

-First precaution is to get careful dental and medical history that includes the name and number of patient’s physician

-Consultation with the physician is a prime requirement if any systemic condition is present.

(1) Cardiac disease

- Patients with congenital heart disease, rheumatic fever , previous valvular operative procedure ⟶ susceptible to bacteraemia during dental procedure
- Prophylactic antibiotic ⟶ prevent subacute bacterial endocarditis
- Patients with peace makers ⟶ equipment that omits electromagnetic and electrostatic interference (pulp testers, sonic devices, electrosurgical equipment ultrasonic units) ⟶ may affect energy supply of the peacemaker

(2) Cardiovascular disorder

-When the cardiovascular disorders disabled the patient endodontic therapy or surgery may be completely contraindicated and only palliative treatment is possible.

-Hypertensive patients should contact the physician for their tolerance for additional stress as the amount of vasoconstrictor in local anaesthetic may be affect hypertensive patients.

(3) blood disorder

Haemophilia :

- Extraction is hazardous for haemophilic patients (endodontic treatments is preferred)
- Haemophilic patients :

Internal bleeding during local anaesthesia or injury to gingiva during application of rubber dam .

- Blood disorder (leukaemia , aplastic anaemia , thrombocytopenia , platelet disorders) ⟶ special attention and approval of physician's consent before prescription of drugs , especially analgesics and antibiotics .

(4) Diabetes melilotus

- Before treatment ⟶ the condition should be controlled either by diet or medication

- The appointment must be after meal or medication has been taken .

This precautions will prevent complications such as diabetic coma or insulin shock because epinephrine can stimulate the breakdown of glycogen to glucose

(5) Hepatitis

- Patients with hepatitis ⟶ have viruses that remain in the blood stream for considerable time after the clinical symptoms have vanished .

-Discard the instruments

-Causations with medications that are normally detoxified in the liver.

(6) kidney diseases

These patients have difficulty with the breakdown and excretion of some drugs

- The use of narcotics and vasoconstrictors should be avoided .
- Use drugs that metabolized in liver are preferable that others that are metabolized in kidney.

(7) Radiation therapy

- Patients who undergone radiotherapy → endodontic treatment is preferred to extraction.
- Patients must be protected by antibiotic during the course of treatment.

(8) Pregnancy

Minimal use of medication coupled with lead shields will protect the foetus from radiation

(9) Epilepsy

- Epileptic patient should take his medication prior to the appointment
- Care must be exercised while using a local anaesthetic in these patients to prevent injection into a blood vessel.

(10) Tuberculosis and other lung infections

- Chronic lung conditions → persistent cough haemoptysis, chest pain, weakness , loss of weight .
- Palliative treatment until the condition is brought under control.

11) Fainting spells (syncope)

- It is a symptom of an extremely nervous patient who would be helped by nitrous oxide analgesia.
- During nitrous oxide oxygen administration ⟶ patient will receive high concentration which may prevent cerebral anoxia (the cause of fainting).

(12) Adrenal cortex disease

- Addison’s disease and Cushing's disease .
- Addison's disease (low level of blood corticosteroids) ⟶ poor ability to cope with stressful condition such as surgery and infection

(no treatment until control has been established)

- Cushing’s disease (high level of blood corticosteroids) often have osteoporotic bone changes, hypertension ⟶ impairment to tissue healing

(no treatment until control has been established)

(13) Thyroid condition and Goitre

Hypothyroidism ⟶ diminished resistance to infection and inability to withstand stress

- Antibiotic should be taken
- Atraumatic appointments as possible as these patients are subject to adrenocortical insufficiency
- Local anaesthetic is without epinephrine
- Premedication with sedative is helpful

(14) Menstruation

- Women can have toothaches which appears to be related to capillary dilation that can occur .
- Post operative haemorrhage occurs more frequently during menstruation

(pulpal extirpation)

- High incidence of flare ups

All these symptoms are related to hormonal changes

(15) Menopause

- Women in the post menopausal ⟶ osteoporotic jaw lesions and atypical facial neuralgia that can stimulate pulplgia
- Periapical areas and rarefactions ⟶ may not heal after endodontic therapy .

These features may be related to depletion of oestrogen

(16) Allergy

- The sensitive patient may be allergic to wide range of medications rather than to just one or two.
- Consult the patient’s physician and use of antihistaminic during treatment

(16) Drugs and medications

(a) Aspirin :

-The most common anti-inflammatory and analgesic agent

-It may cause systemic damage

-For patients taking anticoagulants ⟶ may increase the effect of anticoagulant by releasing it from its binding sites on plasma proteins

-In diabetic patients taking insulin ⟶ can increase the insulin effect and more hypoglycaemia results.

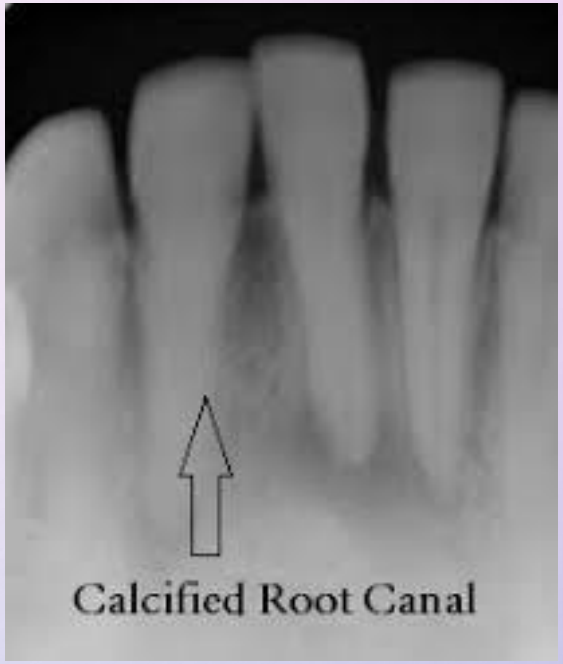
-Patients with history of gastric ulcers ⟶ should not be prescribed

(b) Corticosteroids

- Patients who are taking steroids → should be supported with antibiotic coverage during endodontic treatment
- Shorten the duration visits to reduce the risk of spreading infection .

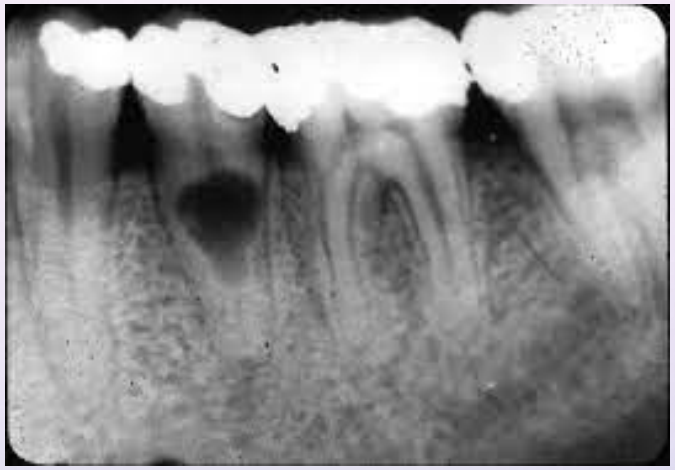
(B) Evaluation of the dental condition of the patient

(1) Root morphology



- Malformed teeth complex and calcified canal system ⟶ may make the canal inaccessible ⟶ should be considered for apical surgery or intentional replantation

(2) Root resorption

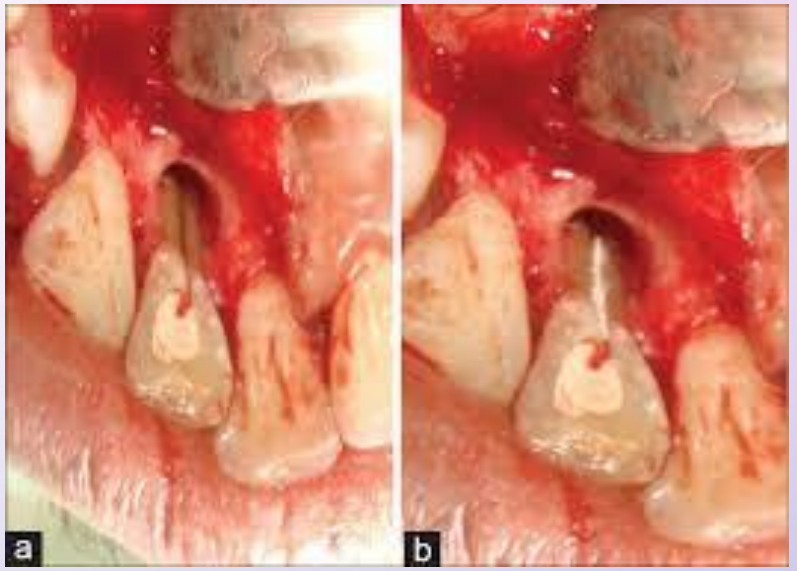


Several internal and external root resorption ⟶ extensive loss of tooth substance ⟶ may preclude endodontic procedure .

(3) Crown/ root ratio

- Unfavourable crown/root ratio ⟶ poor prognosis .

(4) Predictable failure



- Teeth with developmental defects ⟶ predictable failure ⟶ extraction

Lingual developmental groove which extends along the whole length of the root surface ⟶ secondary pulpal involvement (due to direct communication between the apex and the gingival sulcus)

(5) Limited accessibility

- Sometimes the access needed for the dentist’s fingers and instruments is limited .

(as patients with TMJ diseases)

- These cases are difficult to treat.

(6) Proximity to vital structures

- Relationship between the operative areas and adjacent vital structures

(mental foramen, mandibular canal, maxillary sinus) ⟶ obstruct some surgical procedures .

(6) Periapical conditions

- Presence of an intraoral or extraoral sinus tract or a periapical lesion is not contraindicated to conventional endodontic treatment

(however, some require periapical surgery and curettage)

(7) Excessive crown or root damage

- The direction and location of fracture are extremely important, to endodontic prognosis
- Vertical fracture ⟶ poor prognosis
- Horizontal fracture could be treated by hemi sectioning or bicuspidization .

(8) Root perforation

- The size and site of root perforation are very important for the prognosis of such cases.
- Conventional or surgical endodontic therapy may solve the problem .
- Some cases are irreparable and best line of treatment ⟶ extraction.

(9) Hyper calcification

- Calcification in the pulp chamber ⟶ obscure the internal anatomy that leads to the orifices.
- Continued enlargement of the access ⟶ risks for coronal perforation
- Calcification of the root canals ⟶ cause the apex to be inaccessible by non surgical treatment
- Chelating agents ⟶ help to remove calcified areas if narrow canals are present

(10) Obstruction

- Foreign particles , such as amalgam , cement or separated instruments that can not be by passed or incorporated as a part of the root canal filling ⟶ prevent successful non surgical therapy .

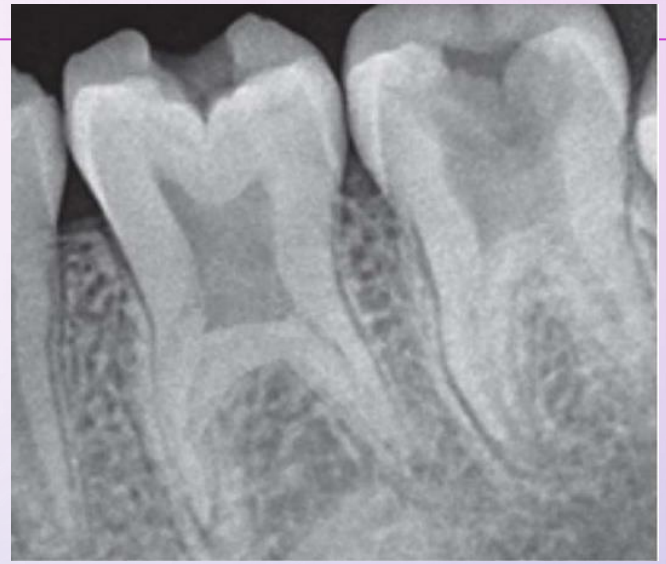
- Apical surgery should be considered to improve the long term prognosis.

(11) Congenital anomaly

(1) Dense invaginatus:

- Variation in tooth morphology ⟶ may be treated conventionally
- In theses cases , where the entire root canal system is inaccessible ⟶ surgical procedure can be performed for apical seal.

(2) Taurodontism



- An inherited trait characterized by large crowns, large pulp chamber and short roots
- Roots often furcated with the ensuring mechanical problem that impair endodontic therapy.

(12) Complex Morphology

The most common variation of normal that cause difficulty for the clinicians :

(a) Extra canals

(b) C-shaped canals

(c) Trifurcated maxillary premolars

(d) Furcated mandibular premolars

(e) Three rooted mandibular molars and molars with four canals

(f) Four-canaled maxillary molars

(g) Type of the root canal

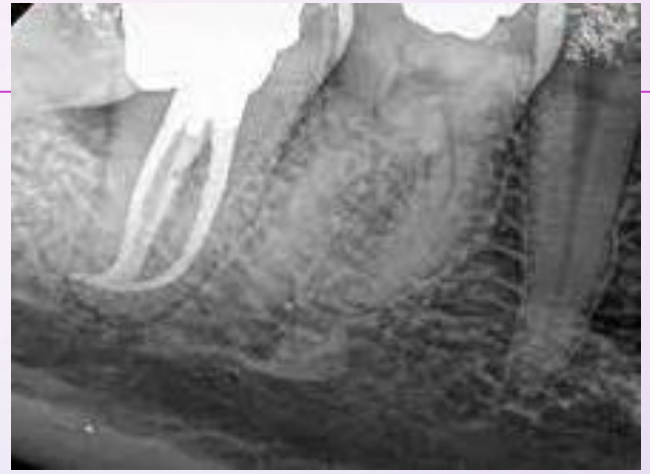
(h) Severely curved canal

(i) Immature apex

(a) Extra canals

- Tooth with multiple extra canals that can not be located , negotiated or obturated ⟹ poor prognosis.
- Apical surgery , intentional or extraction may be the alternative treatment.

(b) C-shaped canals



- Most common in mandibular second molars .
- Cause complex root canal morphology both longitudinally and transversely .
- The clinician should pre curve the file carefully ⟶ the extreme curvature can be negotiated.
- Failure to do this ⟶ result in ledges, inadequate preparation and incomplete filling .

(c) Trifurcated maxillary premolars

- Some maxillary premolars have three roots , two buccal and one palatal .
- Usually the MB canal is most difficult to file and fill and is often overlocked
- Such tooth may be contraindicated to treatment by inexperienced clinicians.

(d) Furcated mandibular premolars

- Can be identified by several x-ray exposure at different horizontal angles.
- The level of the furcation determines the degree of difficulty to be anticipated.
- Canals that furcate in the middle and apical thirds ⟶ difficult treatment.

(e) Three rooted mandibular molars

-The main problem ⟶ locating the extra root .

-It is in the disto-buccal orifice.

(f) Four-canaled maxillary molars

- Maxillary molars , especially first molars ⟶ have two mesio-buccal almost 50% of the time .
- The extra canal is called mesio-buccal canal (MB2)
- It is also possible that these molars have four roots instead of three.

(g) Type of the root canal

-Anatomy of the root canal system should be considered first.

-Different techniques are employed for the wide variations in anatomy of the root canal system.

(h) Severely curved canal

- Severely curved canals ⟶ may lead to difficulty of treatment
- Nickle –titanium systems can manage most canal curvatures
- Surgical interventions ⟶ may be required in some complex curvatures (root resection and retro filing)

(i) Immature apex

-Require certain technique.

- If the pulp is vital ⟶ pulp capping or pulpotomy with the expectation of maintaining pulp vitality until the apex mature.
- If the pulp is non vital ⟶ apexification or apical surgery is done .

(c) Patient care and eagerness

(1) Motivation

(2) Economics

(3) Age

(4) Number of involved teeth

(5) Occupation

(1) Motivation :

-Patient should be aware of the importance of maintaining his teeth .

-Education is important ⟶ patient can realize the importance of maintaining their natural teeth functioning

(2) Economics

-The patient should be informed that although the cost for root canal treatment may be high ⟶ but the cost for extraction and prosthetic appliance is much higher .

(3) Age

Endodontic treatment can be successfully performed in all ages .

-Young patients ⟶ may show immature roots

-Old patients ⟶ may present calcification .

(4) Number of involved teeth

Endodontic treatment is not limited to any number of teeth and the patient may keep even all the arch after endodontic treatment is done .

(5) Occupation

-Some patients exert every effort to maintain their teeth as extraction may affect their phonetics and in turn their occupation as signers, lawyers….. Etc.

Contra-indications of endodontic treatment

(1) Inadequate periodontal support

-There are periodontal conditions that preclude endodontic treatment .

-If periodontal condition is adversely influenced by pulpal condition endodontic therapy should be performed ⟶ good periodontal prognosis.

(2) Vertical fractures :

- Vertical crown/root fracture are generally hopeless.
- Fractures in bucco-lingual plane bisecting the tooth through the furca ⟶ can be corrected by retaining half of the tooth (hemisection)

Or both halves may be preserved (bicuspidization).

(3) Non-restorable teeth

Tooth with badly mutilated , or caries has extended to affect furca or root surfaces below the bony crest ⟶ extraction

(4) Non-strategic teeth

-Teeth which have no present function or possible future prosthetic value ⟹ extraction

Thank u